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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Peter BAUMANN, et al.

Title: PROTECTION-OF-TELOMERE-1
(POT-1) PROTEIN AND
ENCODING
POLYNUCLEOTIDES

Appl. No.: 09/816,248

Filing Date: March 26, 2001

Examiner: MYERS, Carla J.

Art Unit: 1634

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RESPONSE TO OFFICE ACTION

TECH CENTER 1600/2900

Commissioner for Patents
Box NON-FEE AMENDMENT
Washington, D.C. 20231

Sir:

In response to the first Office Action mailed on April 19, 2002, please consider the following amendments and remarks.

IN THE CLAIMS

Please cancel claims 1-5, and add new claims 37-48 as follows:

B1 37 (New). An isolated naturally occurring protein encoded by a variant of a full-length human protection of telomere-1 (hPot 1) transcript.

38 (New). The protein according to claim 37, wherein said variant has the amino acid sequence set forth in SEQ ID NO: 15.

protein = seq 15

*Bl
cond*

39 (New). The protein according to claim 38, wherein said variant is encoded by the polynucleotide set forth in SEQ ID NO: 14. *proteome*

40 (New). The protein according to claim 38, wherein said variant has at least 85% amino acid sequence identity to SEQ ID NO:15. *31*

41 (New). The protein according to claim 38, wherein said variant differs from SEQ ID NO:15 by no more than about 20 single amino acid substitutions, deletions or insertions, and wherein said variant binds single-stranded telomeric DNA. *31?*

42 (New). The protein according to claim 37, wherein said variant has the amino acid sequence set forth in SEQ ID NO: 17. *p10*

43 (New). The protein according to claim 42, wherein said variant is encoded by the polynucleotide set forth in SEQ ID NO: 16. *p17*

44 (New). The protein according to claim 42, wherein said variant has at least 85% amino acid sequence identity to SEQ ID NO:17. *?*

45 (New). The protein according to claim 42, wherein said variant differs from SEQ ID NO:17 by no more than about 20 single amino acid substitutions, deletions or insertions, and wherein said variant binds single-stranded telomeric DNA.

46 (New). The protein according to claim 37, wherein said variant is a splicing variant.

47 (New). A fragment of said variant according to claim 37, wherein said fragment binds single-stranded telomeric DNA.

48 (New). The fragment according to claim 47, wherein said fragment encodes the amino acid sequence set forth in SEQ ID NO: 5. *fragment*

REMARKS

The instant invention relates to naturally occurring Pot 1 proteins that bind single-stranded telomeric DNA, thus, stabilize chromosome ends and regulate telomerase activity. Compounds that stabilize or disrupt the Pot 1-DNA interaction will be useful in regulating the telomere length of a cell, resulting in prolongation of useful cell life-span or cessation of undesirable cell proliferation.

Claims 1-36 are pending in the instant application with claims 1-5 being examined and claims 6-36 being withdrawn by the Examiner for further consideration. By the present communication, Applicants have canceled claims 1-5 and added new claims 37- 48 herein. The new claims are fully supported by the specification and originally filed claims, therefore, do not introduce new matter or require a new search. The newly added claims simply clarify the claimed invention using preferred terminology, and are not intended to further limit the claims, and should not be taken to do so.

Notwithstanding the foregoing, Applicants expressly reserve the right to prosecute subject matter no longer or not yet claimed in the instant application or in one or more applications which may claim priority hereto. Applicants respectfully request reconsideration of the claimed invention in view of the foregoing amendments and the following remarks.

*Non Art-Related Remarks*35 U.S.C. § 112, First Paragraph

The Examiner has rejected claims 3 and 4 under 35 U.S.C. § 112, first paragraph, as alleged containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors had possession of the claimed invention at the time of filing. Applicants respectfully traverse this rejection.

The proper standard by which compliance with the written description requirement of 35 U.S.C. § 112, first paragraph, should be measured is whether the specification conveys with reasonable clarity to one of skill in the art that applicants had possession of the claimed invention. The subject matter need not be described literally in the specification to meet this reasonableness standard. *See*, MPEP § 2163.02.

Applicants respectfully disagree with the Examiner's assertion that the specification does not disclose any additional splice variants besides those encoding SEQ ID NO: 15 and 17, and does not disclose any other types of variants of the human Pot 1 protein. The Examiner's attention is directed to the specification page 4, 2nd full paragraph, where it states that "Accordingly, the invention provides isolated Pot 1 proteins having the sequence set forth in SEQ ID NO: 13, SEQ ID NO: 15, SEQ ID NO: 17, SEQ ID NO: 9, or SEQ ID NO: 11. Variants of these proteins are capable of binding single-stranded telomeric DNA..... The invention also provides an isolated, naturally occurring, variant of a protein having the sequence set forth in SEQ ID NO: 13 or in SEQ ID NO: 9, which may be a splice variant...." Therefore, the specification conveys with reasonable clarity to one of skill in the art that the instant invention provides variants of SEQ ID NO: 13.

Nevertheless, in an effort to advance prosecution, Applicants have canceled the claims 3 and 4, rendering the rejection moot. Moreover, the rejection is not applicable to the new claims. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw this rejection.

35 U.S.C. § 112, Second Paragraph

Claims 2-5 have been rejected under 35 U.S.C. § 112, Second Paragraph as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants respectfully traverse the rejection.

However, in an effort to advance prosecution, Applicants have canceled claims 2-5 rendering the rejection moot. Moreover, the rejection is not applicable to new claims, e.g. claims 37, 41 and 45. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw this rejection.

Art Related Remarks

35 U.S.C. §102 (b)

Claims 1-5 have been rejected under 35 U.S.C. §102(b), as allegedly being anticipated by Isogai *et al.* because Isogai *et al.* disclose a protein having an amino acid sequence identical to the protein of SEQ ID NO: 13, comprising an amino acid sequence identical to the protein of SEQ ID NO: 5, and comprising an amino acid sequence having at least 93% identity with SEQ ID NO: 15 and at least 96% identity with SEQ ID NO: 17. Applicants respectfully traverse the rejection.

In order to anticipate a claim, a single prior art reference must provide each and every element set forth in the claim. Furthermore, the claims must be interpreted in light of the teaching of the specification. *In re Bond*, 15 USPQ2d 1566, 1567 (Fed. Cir. 1999); *See also* MPEP 2131.

Applicants respectfully submit that the claims 1-5 have been canceled, rendering the rejection moot. Moreover, the rejection is not applicable to new claims because the new claim 37 recites an isolated naturally occurring protein encoded by a variant of a full-length human Pot 1 transcript.

In light of the teachings of the specification, it is respectfully submitted that the protein of SEQ ID NO: 13 is encoded by a full-length hPot 1 cDNA (*i.e.* mature transcript, *See* Fig. 9A & 9B), and represents a full-length hPot 1 protein, whereas SEQ ID NO: 15 and 17 are two examples of the proteins encoded by the splice variants of the hPot 1 mature transcript. Moreover, the specification suggests that additional variants may arise from translation frame shift. *See* page 21, 2nd full paragraph, last sentence.

Although Isogai *et al.* disclose a protein having an amino acid sequence identical to SEQ ID NO: 13, the reference does not suggest or teach the variants of the protein as disclosed and claimed in the instant invention, nor does the reference provide one of skill in the art any incentive to further identify these variants of the protein.

Accordingly, because Isogai *et al.* does not teach or suggest each and every element of the instant claims, no *prima facie* case of anticipation has been provided. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the rejection.

CONCLUSION

In view of the foregoing amendments and remarks, Applicants respectfully submit that the pending claims are in condition for allowance. An early notice to that effect is earnestly solicited. Should any matters remain outstanding, the Examiner is encouraged to contact the undersigned at the address and telephone number listed below so that they may be resolved without the need for additional action and response thereto.

Respectfully submitted,

Date 7/17/02

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By [Signature]
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